REMARKS

Claims 1, 4, 9-12, and 18-19 are all the claims pending in the application. Claims 18 and 19 are added by way of this Amendment. Claims 1, 4 and 9-12 presently stand rejected.

I. Objection to Abstract

The abstract of the disclosure is objected to. Applicants amend the Abstract to obviate the objection.

II. Claim Rejections

Claim 1 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitano et al. (6,465,876) with fig. 6 in view of fig. 12 in the same reference.

Claims 4 and 9-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kitano et al. (6,465,876) in view of Nakamura (6,313,526).

Analysis

Claim 1 is the only claim in independent form; therefore, the following discussion is initially directed to this independent claim.

Applicants respectfully traverse the rejection of claim 1 for the following reasons.

(1) The metal plate 6 does not have flexible wiring boards mounted at regular intervals

As noted in the previous Amendment, the metal plate 6 is the structure formed after the lead frame 9 is cut. Thus, it is inaccurate to interpret Kitano as disclosing that the metal plate 6 is a carrying support film on which flexible wiring boards are mounted at regular intervals. Moreover, it is duly noted that the lead frame 9 is not a carrying support film on which flexible wiring boards are mounted at regular intervals.

(2) There is no motivation for modifying the alleged metal plate 6 or lead frame 9 to have the structure of the printed circuit board 15

In the Office Action, the Examiner asserts that it would have been obvious to modify the structure in FIGS. 1-6 with the structure of FIG. 12. In particular, the Examiner indicates that FIGS. 1-6 of Kitano do not specifically disclose an interior area defined by an outer perimeter of each of the mounting portions having no holes formed. However, the Examiner asserts that it would have been obvious to one having ordinary skill in the art at the time of the invention to have the carrying support film having no holes as in FIG. 12 of Kitano "in order to provide a high connection reliability."

FIG. 12 discloses a sectional view of the fifth embodiment illustrated in FIG. 11. In particular, projecting leads 14 project upward from the surface of the metal plate 6 and are provided on the outer periphery of the metal plate 6. Such projecting leads project to the plane containing the top surface of the solder bump 8. The solder bumps are welded to the electrodes 15b of the printed circuit board 15. Thus, metal plate 6 (and the lead frame 9 from which the metal plate 6 is formed) is a completely different entity than the printed circuit board 15. In other words, the printed circuit board 15 is not a carrying support film, and there is no motivation or modifying the structure of the metal plate 6 (or lead frame 9) to be like the structure of a printed circuit board 15 which is a completely different type of element having a different type of function than the metal plate 6 and lead frame 9.

In other words, the structure of a printed circuit board 15 to which the metal plate 6 (or lead frame 9) is to be mounted provides no obvious teachings for modifying the metal plate 6 (or lead frame 9). The metal plate 6 (col. 5, lines 35-37) "serves to reinforce the insulating tape 3,

provided with the wiring patterns 4 and the pads 5." The metal plate 6 is formed by the lead frame 9 and the insulating tape 3 that are cut and separated along a dot and dash line A-A in FIG. 4 (col. 6, lines 15-18) or slits 13 in FIG. 6. (That is, the lead frame 9 is the metal plate 6 before it is cut into discrete pieces.) "The lead frame 9 is finally cut and separated into individual semiconductor devices, its cut plane constitutes the side wall 1a" (col. 6, lines 20-24).

According to the fourth embodiment of FIG. 12, the semiconductor device of FIG. 11 is mounted on a printed circuit board 15. There is no teaching or suggestion of any advantage to be gained by forming the alleged carrying support film 12 to have no holes formed at an interior of the mounting portion thereof.

Thus, the Examiner's rejection of claim 1 based on modifying FIG. 6 with the structure of the printed circuit board 15 of FIG. 12 is respectfully traversed.

In view of the foregoing, we would respectfully request the Examiner to reconsider and withdraw the rejection of claim 1 since Kitano fails to teach or suggest each and every feature of claim 1.

The remaining rejections are directed to the dependent claims. These claims are patentable for at least the same reasons as claim 1, by virtue of their dependency therefrom.

New Claims:

New claims 19 and 20 are patentable for at least the same reasons as claim 1 above, by virtue of their dependency therefrom. Moreover, these claims are patentable by virtue of their own recitations.

Dependent claim 19 clarifies that the mounting portion is flat as shown in FIG. 4B. This feature is not disclosed in Kitano.

Dependent claim 20 clarifies the adhesive of the present invention. The adhesive is formed to correspond to the whole bonding surface of either the board or the mounting portion. That is, the adhesive layer is provided so that "an entire surface of each of the flexible wiring boards and an entire surface of each of the mounting portions of the carrying support film are bonded to each other through an adhesive agent" ... "wherein the adhesive agent is applied on the entire surface of at least one of the flexible wiring boards and the mounting portions". In other words, the adhesive is applied to the whole bonding surface of the board 1 or on the whole surface of the film 7 so that the adhesive agent has a uniform thickness (page 18, first full paragraph).

Kitano specifically teaches that the adhesive 20 is applied between the insulating tape 3 (alleged board) and the plate 6. Since Kitano is explicitly directed to using insulating tapes 3 having holes formed therein, any adhesive applied thereto could not possibly cover an entire surface of the mounting portion or the board. Thus, claim 20 is patentable.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Ellen R. Smith/

Ellen R. Smith
Registration No. 43,042

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON DC SUGHRUE/265550

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